

=> d his

(FILE 'HOME' ENTERED AT 16:00:00 ON 19 JAN 2005)

FILE 'CA' ENTERED AT 16:00:08 ON 19 JAN 2005

E GIBSON T/AU
L1 72 S E3,E7
E GIBSON TIM/AU
L2 23 S E3-4,E7-8
E PUTTICK P/AU
L3 1 S E4
E HULBERT J/AU
L4 10 S E3,E8-9,E12-13
E MARSHALL R/AU
L5 260 S E3,E30-31
E MARSHALL ROB/AU
L6 36 S E4,E32-33
E LI Z/AU
L7 935 S E3,E23
E LI ZHUO/AU
L8 4 S E35
L9 282 S L1-8 AND(SENSOR OR DETECTOR)
L10 71 S L9 AND PY<1998

=> d bib,ab l10 1-71

●L10 ANSWER 8 OF 71 CA COPYRIGHT 2005 ACS on STN

AN 128:215147 CA

TI Detection and simultaneous identification of microorganisms from headspace samples using an electronic nose

AU Gibson, T. D.; Prosser, O.; Hulbert, J. N.; Marshall, R. W.; corcoran, P.; Lowery, P.; Ruck-Keene, E. A.; Heron, S.

CS Dep. of Biochemistry and Molecular Biology, University of Leeds, Leeds, LS2 9JT, UK

SO Sensors and Actuators, B: Chemical (1997), B44(1-3), 413-422

AB The detection and simultaneous identification of a range of microorganisms by measuring the volatile compds. produced from plate cultures has been carried out using an electronic nose and a neural network classifier. Headspace samples were taken from static atmospheres formed from inoculated agar plates after a suitable growth period at 37° and analyzed using a std. 16 **sensor** array operating in transient flow mode. The response of the **sensor** array to water and to the control media in the absence of microbial growth was also detd., allowing greater discrimination of microbial volatiles. The response curves produced were processed using std. back propagation neural network techniques to provide identification. The overall classification rate for 12 different bacteria and one pathogenic yeast was 93.4%. Data for a sub-set of seven bacteria gave 100% classification using the same methods. In a second expt. three similar yeast cultures were compared and correctly classified at a level of 96.3% with no pre-processing to remove the sample signal generated by the media. Principal component anal. on selected data gave clear discrimination between water vapor and the test samples.

L10 ANSWER 28 OF 71 CA COPYRIGHT 2005 ACS on STN
AN 126:274376 CA
TI Biomimicry of smell using organic electroconductive polymer **sensor**
arrays: applications in an electronic nose
AU **Gibson, T. D.; Hulbert, J. N.; Marshall, R. W.;** Peace, J.; Corcoran,
P.; Ruck - Keene, E. A.
CS Department of Biochemistry and Molecular Biology, University of Leeds,
Leeds, LS2 9JT, UK
SO Polymeric Materials Science and Engineering (1997), 76, 515-516
AB The authors report in this paper the use of arrays of **sensors** based on
electroconductive polymers operating in transient flow mode to produce
digital fingerprints of odor. Examples of volatile samples taken from the
headspaces originating from yeast cultures grown on agar plates and the
responses of **sensors** to pure volatile compds. are shown.

▣L10 ANSWER 37 OF 71 CA COPYRIGHT 2005 ACS on STN
AN 125:25314 CA
TI Odor **sensor**
IN **Gibson, Timothy David; Puttick, Peter; Hulbert, John Neal; Marshall,**
Robert Wilson; Li, Zhuoshu
PA Mastiff Electronic Systems Ltd, UK
SO PCT Int. Appl., 34 pp.
PI WO 9607901 A1 19960314 WO 1995-GB2117 19950906
<--
US 5928609 A 19990727 US 1997-793957 19970714
PRAI GB 1994-17913 A 19940906

=> log y
STN INTERNATIONAL LOGOFF AT 16:08:09 ON 19 JAN 2005

=> d his

(FILE 'HOME' ENTERED AT 14:31:59 ON 19 JAN 2005)
FILE 'CA' ENTERED AT 14:32:10 ON 19 JAN 2005
L1 55333 S (POLY OR POLYMER?) (5A) (ANILIN? OR ALKYLANILIN? OR THIOPHEN? OR
ALKYLTHIOPHEN? OR METHYLTHIOPHEN? OR PYRROL? OR ALKYLPIRROL? OR
METHYLPIRROL? OR EDOT OR ETHYLENEDIOXYTHIOPHENE OR ACETYLEN? OR
PARAPHENYLEN? OR INDOL? OR P PHENYLEN?) OR PANI OR PPY OR POLYANI LIN? OR
POLYEDOT OR POLYPIRROL?
L2 30817 S POLYALKYLANILIN? OR POLYTHIOPHEN? OR POLYALKYLTHIOPHEN? OR
POLYMETHYLTHIOPHEN? OR POLYALKYLPIRROL? OR POLYMETHYLPIRROL? OR
POLYETHYLENEDIOXYTHIOPHENE OR POLYACETYLEN? OR POLYPARAPHENYLEN? OR
POLYINDOL? OR POLYCARBAZOL? OR POLYPHENYLENEDIAMIN? OR POLYPHTHALOCYANIN? OR
POLYIMIDAZOL?
L3 7559 S L1-2(6A) (COMPOSITE OR BLEND OR MIXTURE)
L4 2564 S L3 AND(RESISTIV? OR CONDUCTIV? OR IMPEDANCE OR CHEMORESIST? OR
CHEMO RESIST?)
L5 459 S L4 AND (ELECTRODE OR MICROELECTRODE)
L6 358 S L3 AND(SENSOR OR DETECTOR OR(ANALY? OR DETECTI? OR MEASUR? OR
MONITOR? OR TEST?) (3A) (DEVICE OR LAYER OR FILM OR SYSTEM OR ANALYZER OR

MATERIAL)OR SENSITIVE(3A)(MATERIAL OR LAYER OR FILM))

L7 754 S L3(10A)(METAL? OR NICKEL OR NI OR COPPER OR CU OR GOLD OR AU OR SILVER OR AG OR PLATINUM OR PT OR PALLADIUM OR PD OR GRAPHITE OR GRAFITE OR CARBON BLACK OR CB OR CHARCOAL OR ALUMINUM OR AL)

L8 593 S L7 AND (L4 OR ELECTROACTIV? OR ELECTROCHEM? OR PARTICLE OR FIBER OR FIBRE OR REDOX OR (ELECTRONIC OR ELECTRICAL)(2A)PROPERTIES)

L9 584 S L5-6,L8 NOT PY>1997

L10 558 S L9 NOT(CORROSION OR NEUTRAL SOLUTION OR ZYTEL OR TRITIUM OR PHOTOVOL? OR RADAR OR OPTICAL SENSOR)

L11 452 S L10 NOT BATTERY

=> d bib,ab l11 1-452

L11 ANSWER 5 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 129:75591 CA

TI Langmuir-Blodgett films of pyrrole derivatives: electrical characterization by microelectronic test structures for **sensor** applications

AU Di Zitti, E.; Parodi, M. T.; Bonfiglio, A.; Chiabrera, A.

CS Department of Biophysical, University of Genova, Genoa, 16145, Italy

SO Artificial and Natural Perception, Proceedings of the Italian Conference on Sensors and Microsystems, 2nd, Rome, Feb. 3-5, 1997 (1997), 143-147. Editor(s): Di Natale, Corrado; D'Amico, Arnaldo; Davide, Fabrizio A. M. Publisher: World Scientific, Singapore, Singapore.

AB Conducting polymers can be efficiently exploited in new smart gas-sensing devices if stable films are coupled with substrates compatible with microelectronics. The authors report the prepn. and the elec. characterization of Langmuir-Blodgett **polymeric** films made from **mixts.** of **pyrroles** and pyrrole monomers functionalized with alkyl chains, collected on interdigitated structures of titanium nitride on silicon.

▣L11 ANSWER 26 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 127:132941 CA

TI A new method for dispersing palladium microparticles in conducting polymer films and its application to biosensors

AU Yamato, Hitoshi; Koshiba, Takafumi; Ohwa, Masaki; Wernet, Wolfgang; Matsumura, Michio

CS International Research Laboratories, Ciba-Geigy (Japan) Ltd., 10-66 Miyuki-cho, Takarazuka, 665, Japan

SO Synthetic Metals (1997), 87(3), 231-236

▣L11 ANSWER 33 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 126:331274 CA

TI Synthesis and characterization of conducting polymers and their composites

AU Toppare, L.

CS Department of Chemistry, Bilkent University, Ankara, 06533, Turk.

SO Turkish Journal of Chemistry (1997), 21(1), 30-34

▣L11 ANSWER 40 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 126:287201 CA

TI Conducting polymer based pH **detector**: a new outlook to pH sensing

technology

AU Talaie, Afshad

CS Chemical Engineering Department, The University of Sydney, NSW 2006, Australia

SO Polymer (1997), 38(5), 1145-1150

●L11 ANSWER 57 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 126:32082 CA

TI Conducting polymer **composites** of **polypyrrole** and polyindene

AU Bozkurt, A.; Akbulut, U.; Toppare, L.

CS Department of Chemistry, Middle East Technical University, 06531, Ankara, Turk.

SO Synthetic Metals (1996), 82(1), 41-46

AB **Polypyrrole**-polyindene **composites** were prepd. via electrochem. methods. Two different approaches were utilized. In the first, the electro-initiated polymn. of indene on a platinum **electrode** was achieved at 2.0 V vs. Ag/Ag⁺ in acetonitrile. Then the polyindene-coated **electrode** was used for the electrochem. polymn. of pyrrole at 1.0 V vs. Ag/Ag⁺. In the second case, electrochem. coating of platinum **electrode** with polypyrrole at 1.0 V vs. Ag/Ag⁺ was carried out and indene was polymd. on the conducting polymer at 2.0 V vs. Ag/Ag⁺ in acetonitrile medium. The characterizations of these composites were done by FT-IR, SEM, and thermal gravimetric anal. (TGA). Elec. **conductivities** were evaluated by two-probe and four-probe methods.

L11 ANSWER 64 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 125:287230 CA

TI The electrocatalytic oxidation of methanol at finely dispersed platinum nanoparticles in polypyrrole films

AU Hepel, Maria

CS Department Chemistry, State University New York College Potsdam, Potsdam, NY, 13676, USA

SO Proceedings - Electrochemical Society (1996), 96-8(Electrode Processes), 456-480

AB A new method of the formation of **composite polypyrrole** films contg. a highly dispersed three-dimensional array of **platinum** catalyst **particles** is presented. PtCl₄²⁻ anions were trapped inside the polypyrrole matrix during the electropolymn. of pyrrole. In the next step followed by soln. exchange, PtCl₄²⁻ anions were reduced to Pt⁰ **particles** with an av. size of 10 nm. Metallic **particles** were incorporated in elec. conducting polypyrrole films to achieve multi-electron transfer processes in a three-dimensional matrix. These films were characterized using the **Electrochem.** quartz Crystal Microbalance technique (EQCM). The use of this technique allowed the authors to evaluate the Pt⁰ loading inside the polymer film. The electropolymn. process was controlled by measuring frequency changes of piezoelectrodes. The presence of **Pt particles** in **composite polypyrrole** films and their uniform distribution were confirmed by Energy Dispersive x-ray Spectroscopy and x-ray Diffraction. The size of the Pt⁰ **particles** was evaluated from TEM expts. The electrocatalytic effect towards methanol oxidn. was found. Lesser poisoning effects were obsd. for **electrodes** with dispersed Pt nanoparticles in polymer matrix than **electrodes** with electrodeposited Pt on the surface of **conductive** polymer.

●L11 ANSWER 68 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 125:222608 CA

TI **Electrochemical** copolymerization of thiophene and aniline

AU Talu, Muzaffer; Kabasakaloglu, Melike; Oskoui, Hossin Rastgha

CS Faculty of Arts and Science, Gazi University, Ankara, 06500, Turk.

SO Journal of Polymer Science, Part A: Polymer Chemistry (1996), 34(14), 2981-2989

AB Homopolymer, copolymer, and composites of aniline and thiophene were synthesized in nitrogen atm. by using TEATFB (Tetra-Et ammonium tetrafluoroborate) and Lithium perchlorate as supporting electrolytes. To analyze their structure and characteristics, IR spectrums of the samples were taken and TGA was applied. The samples were photographed under SEM for microstructure anal. and their **electrochem.** properties were obsd. and **conductivities** were obtained by four-probe method. Homopolymn. and copolymn. reactions were carried out in two different solvents viz. acetonitrile and benzonitrile to see the solvent effect on polymn. However, changing the solvent had no significant effect on the resulting properties. Changing the supporting electrolyte caused a structural difference in the resulting homopolymer. It also affects the properties considerably. During the bilayer prepn. changing the coating turn led to variations in the properties of the samples. When polythiophene (PT) was coated with **polyaniline** (PA), the resulting system was a **composite**. However, in coating PA with PT the system was identified to be a copolymer.

L11 ANSWER 80 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:345340 CA

TI Structure and **electrochemical** properties of electrically **conductive** composites

AU Kang, Dong Il; Cho, Won Jei; Ha, Chang Sik

CS Dep. of Polymer Science and Engineering, Pusan National Univ., Pusan, 609-735, S. Korea

SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1996), 280, 199-204

AB Conducting **composites** of **polypyrrole** (PPy) and **poly(N-methylpyrrole)** (PNMP) were prepd. by **electrochem. polymn.** of the corresponding monomers at a **platinum electrode** surface in 0.036M tetrabutylammonium dodecyl sulfate (TBADS)/acetonitrile (ACN) electrolyte soln. system. Two types of **composites** were prepd.; PPy/PNMP bilayer **composite** films and monomer **mixt.** conducting **polymer composites** of **pyrrole** and **N-methylpyrrole**. The composites were characterized by TGA, SEM and 4-probe meter. The composites exhibited different elec. resistances and thermal stabilities depending on the prepn. method of the conducting polymer composites. The PPy/PNMP bilayer **composite** firms showed lower elec. resistance (i.e. better elec. **cond.**) and higher thermal stability than any other composite films obtained in this work.

▣L11 ANSWER 82 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:305963 CA

TI Novel composite organic-inorganic semiconductor **sensors** for the quantitative detection of target organic vapors

AU de Lacy Costello, Benjamin P. J.; Evans, Phillip; Ewen, Richard. J.;
Honeybourne, Colin L.; Ratcliffe, Normal M.
CS Fac. Applied Sciences, Univ. West of England, Bristol, BS16 1QY, UK
SO Journal of Materials Chemistry (1996), 6(3), 289-94

L11 ANSWER 86 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:234216 CA

TI Effect of the composition of polypyrrole substrate on the
electrodeposition of copper and nickel

AU Hepel, Maria; Chen, Yi-Ming; Stephenson, Richard

CS Dep. Chem., State University New York College Potsdam, Potsdam, NY,
13676-2294, USA

SO Journal of the Electrochemical Society (1996), 143(2), 498-505

AB Electrodeposition of copper and nickel on a variety of substrates
including **conductive** polymer films with two different compns. has been
studied. The enhancement of the **copper** and **nickel** electrodeposition rate
was obsd. for **composite polypyrrole** films with cation-exchange properties in
comparison to undoped polypyrrole films with anion-exchange properties.
Significant enhancement of the nickel electrodeposition rate on both types
of **conductive** polymer vs. the bare gold **electrode** was also found. An
explanation of these effects is presented. An **electrochem.** quartz crystal
microbalance (EQCM) with 10 MHz AT-cut piezoelectrodes was used in this
study. Use of the EQCM technique allowed for simultaneous monitoring of
voltamperometric and resonance frequency vs. potential or time
characteristics. The thickness of electropolymd. polypyrrole films as well
as the amts. of electrodeposited metals were controlled by monitoring the
EQCM resonant frequency. The nucleation d. has been detd. from scanning
electron microscope expts. The study is of interest in various electronic
applications.

L11 ANSWER 88 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:210695 CA

TI Carbon black and carbon black-conducting polymer composites for
environmental applications

AU Rajeshwar, Krishnan; Wampler, Wesley A.; Goeringer, Scott; Gerspacher,
Michel

CS Department Chemistry and Biochemistry, University Texas, Arlington, TX,
76019-0065, USA

SO Preprints of Papers - American Chemical Society, Division of Fuel
Chemistry (1996), 41(1), 498-502

AB **Composites** outperform **polypyrrole** and **carbon black** in terms of their
ability to reduce Cr(VI). In the **composite**, **redox (polypyrrole)** and
oxidizable (**carbon black**) functions are built the material framework. The
former is reversible and the latter is irreversible.

L11 ANSWER 91 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:125947 CA

TI A new approach to Cr(VI) remediation based on the use of polypyrrole
and carbon black

AU Rajeshwar, K.; Wei, C.; Basak, S.; Wampler, W. A.

CS Dep. of Chemistry and Biochemistry, Univ. of Texas at Arlington,

Arlington, TX, 76019, USA

SO Proceedings - Electrochemical Society (1995), 95-12 (Proceedings of the Symposium on Electrochemical Technology Applied to Environmental Problems, 1995), 121-31

AB Electroconductive polymers, such as polypyrrole, are being considered for a wide range of applications. In this paper, proof of concept is provided to show their utility for toxic waste cleanup. Polypyrrole is capable of the fast and efficient redn. of Cr(VI) in aq. media. An **electrochem.** post-treatment restores the redn. capacity of the polymer for use in further cleanup cycles. Carbon black can be used in a similar manner. However, it has been shown that **composites** of **polypyrrole** and **carbon black** are more effective than either used in isolation.

L11 ANSWER 98 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 124:17495 CA

TI Metalization of polypyrrole films. Part II: Electrodeposition of copper.

AU Hepel, Maria; Chen, Yi-Ming; Adams, Laura

CS Department Chemistry, State University New York, Potsdam, NY, 13676, USA

SO Proceedings of the AESF Annual Technical Conference (1995), 82nd, 709-20

AB The electrodeposition of **copper** on **composite conductive** polymer **polypyrrole**/polystyrenesulfonate **PPy**(PSS) was studied. The morphol. of copper deposits was studied in the presence of thiourea, benzotriazole, boric acid, 1,5-naphthalenedisulfonic acid, chloral hydrate, EDTA, and p-aminophenol. In the presence of thiourea in the soln., the rate of copper deposition on PPy(PSS) substrate was slightly inhibited but the rate of copper stripping was faster than in its absence. The addn. of benzotriazole to the soln. in mM concn. range results in large sepn. between the deposition and stripping peaks. The formation of Cu(I)-benzotriazole film in the intermediate potential range was confirmed with the **electrochem.** quartz crystal microbalance and voltammetric techniques. The **electrochem.** quartz crystal microbalance (EQCM) technique in conjunction with SEM was used. The EQCM technique allowed the authors to simultaneously monitor voltammetric and resonance frequency vs. potential or time characteristics. The amt. of electrodeposited copper was controlled by monitoring the EQCM resonant frequency.

L11 ANSWER 101 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 123:291705 CA

TI **Polypyrrole/Pt composites** as potential electrode materials for fuel cells

AU Hepel, Maria; Ming, Yi-Chen; Stimming, Ulrich

CS Dep. Chem., State Univ. New York Coll. Potsdam, Potsdam, NY, 13676, USA

SO New Materials for Fuel Cell Systems I, Proceedings of the International Symposium on New Materials for Fuel Cell Systems, 1st, Montreal, July 9-13, 1995 (1995), 629-57. Editor(s): Savadogo, Oumarou; Roberge, P. R.; Veziroglu, T. N. Publisher: Editions de l'Ecole Polytechnique de Montreal, Montreal, Que.

AB Polypyrrole films contg. a three-dimensional array of platinum catalyst

particles on gold **electrochem.** quartz crystal microbalance (EQCM) substrate were formed by an electropolymer. reaction at const. potential. PtCl_4^{2-} anions were trapped inside the polypyrrole matrix during the electropolymer. of pyrrole. In the next step followed by soln. exchange, PtCl_4^{2-} anions were reduced to Pt^0 **particles** with sizes <20 nm. Metallic **particles** were incorporated in elec. conducting polypyrrole films in order to achieve multi-electron transfer processes in a three-dimensional matrix. These films were characterized by using the EQCM technique. The use of this technique allows us to evaluate Pt loading inside the polymer film. Two different methods were applied to calc. Pt loading from frequency measurements. The electropolymer. process was controlled by measuring the frequency changes of piezoelectrodes. The presence of **Pt particles** in **composite polypyrrole** films was confirmed by energy dispersive x-ray spectroscopy and x-ray diffraction. The electrocatalytic effect towards the redn. of oxygen and hydrogen ions, as well as the methanol oxidn. were studied. The effect of electrode prepn. conditions on the electrocatalytic activity was obsd.

▣L11 ANSWER 107 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 123:85260 CA

TI Preparation and characterization of **polyaniline-palladium composite** films

AU Li, Hongshi; Baer, D. R.; Engelhard, M. H.; Janata, J.; Josowicz, M.
CS Environ. Mol. Sci. Lab., Pacific Northwest Lab., Richland, WA, 99352, USA

SO Materials Research Society Symposium Proceedings (1995), 369(Solid State Ionics IV), 581-5

▣L11 ANSWER 108 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 123:56769 CA

TI **Composites** of **polypyrrole** and **carbon black**. Part III. Chemical synthesis and characterization

AU Wampler, Wesley A.; Rajeshwar, Krishnan; Pethe, R. G.; Hyer, R. C.; Sharma, S. C.

CS Fort Worth Res. Center, Sid Richardson Carbon Co., Fort Worth, TX, 76106, USA

SO Journal of Materials Research (1995), 10(7), 1811-22

●L11 ANSWER 115 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:275000 CA

TI Coating of uniform inorganic **particles** with polymers. II. Polyaniline on copper oxide

AU Huang, Chin-Lin; Partch, Richard E.; Matijevic, Egon

CS Center for Advanced Materials Processing, Clarkson University, Potsdam, NY, 13699-5814, USA

SO Journal of Colloid and Interface Science (1995), 170(1), 275-83

AB Uniform spherical colloidal **copper oxide particles** were coated with **polyaniline** in the reaction **mixts.** contg. CuO , aniline, water, ethanol, and polyvinyl alc. (PVA) without the use of a sol. oxidant. The final dispersion consisted of a mixt. of CuO with a polymer shell and independent polyaniline (latex) **particles**. The reaction between aniline and CuO follows

the well-known mechanism by which the metal oxide undergoes reductive dissoln. while the org. monomer is oxidized. Oxygen and PVA are essential to the polymn. of aniline in the system. Oxygen may function as an oxidant to promote the polymn., while PVA forms micelles that enhance the reaction rate through emulsion polymn. and protect polyaniline from hydrolysis. A temp. > 90° is necessary for the reaction to achieve a coating of > 10% by wt. in 48 h. The thickness of the polymer shell can be adjusted by changing the reaction time and the concns. of aniline, copper oxide, and ethanol. The structure of the produced polymer corresponds to that of polyleucoemeraldine.

L11 ANSWER 118 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:250488 CA

TI Metalization of polypyrrole films

AU Hepel, Maria; Chen, Yi-Ming; Stephenson, Richard

CS Dep. Chem., State Univ. New York Coll. Potsdam, Potsdam, NY, 13676-2294, USA

SO Proceedings - Electrochemical Society (1994), 94-31 (Electrochemically Deposited Thin Films), 304-19

AB Electrodeposition of copper and nickel on a variety of substrates including **conductive** polymer films with two different compns. was studied. The enhancement of the **copper** and the **nickel** electrodeposition rate was obsd. for **composite polypyrrole (PPy(PSS))** films with cation-exchange properties in comparison to undoped polypyrrole (PPy) films with anion-exchange properties. Significant enhancement of nickel electrodeposition rate on both types of **conductive** polymer vs. bare gold **electrode** was also found. An explanation of these effects are presented. An **Electrochem.** Quartz Crystal Microbalance (EQCM) with 10 MHz AT-cut piezoelectrodes was used. Use of the EQCM technique allowed for simultaneous monitoring of voltamperometric and resonance frequency vs. potential or time characteristics. The thickness of electropolymd. polypyrrole films as well as the amts. of electrodeposited metals were controlled by monitoring the EQCM resonant frequency. The nucleation d. was detd. from Scanning Electron Microscope (SEM) expts.

▣L11 ANSWER 123 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:225116 CA

TI Preparation and characterization of **polyaniline-palladium composite** films

AU Li, Hong-Shi; Josowicz, M.; Baer, D. R.; Engelhard, M. H.; Janata, J.

CS Pacific Northwest Lab., Environmental Mol. Sci. Lab., Richland, WA, 99352, USA

SO Journal of the Electrochemical Society (1995), 142(3), 798-805

▣L11 ANSWER 126 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:189535 CA

TI **Composites of Polypyrrole and Carbon Black. 2. Electrosynthesis, Characterization and Influence of Carbon Black Characteristics**

AU Wampler, Wesley A.; Wei, Chang; Rajeshwar, Krishnan

CS Fort Worth Research Center, Sid Richardson Carbon Co., Fort Worth, TX, 76106, USA

SO Chemistry of Materials (1995), 7(3), 585-92

●L11 ANSWER 129 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:150274 CA

TI A conducting **composite** of **polypyrrole**. II. As a gas **sensor**

AU Selampinar, Fatma; Toppare, Levent; Akbulut, Ural; Yalcin, Talat; Suezer, Sefik

CS Department of Chemistry, Middle East Technical University, Ankara, 06531, Turk.

SO Synthetic Metals (1995), 68(2), 109-16

AB Pure **polypyrrole** (PPy) and **polypyrrole**-polyamide (PPy-PA) **composite** films were synthesized electrochem. The gas-sensing ability was studied for both pure PPy and PPy-PA films. The composite films' response to several gases are better defined and reproducible compared to pristine conducting polymer. Electrochem. behavior of PPy and PPy-PA electrodes in the presence of pyrrole and pyrrole-free medium was studied via cyclic voltammetry. Mass spectrometry studies strictly reveal that the composite is completely different to a mech. mixt. This phenomenon is discussed in comparison to **polyaniline**-polycarbonate **composite**.

L11 ANSWER 133 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:18870 CA

TI Metalization of polypyrrole films. Part I: Electrodeposition of nickel

AU Hepel, Maria; Stephenson, Richard

CS Department Chemistry, State University New York Potsdam, Potsdam, NY, 13676, USA

SO Proceedings of the AESF Annual Technical Conference (1994), 81ST, 51-67

AB Electrodeposition of Ni on a variety of substrates, including **conductive** polymer films with different compns., was studied. The enhancement of the **Ni** electrodeposition rate was obsd. for **composite polypyrrole** films with cation-exchange properties in comparison with undoped polypyrrole films with anion-exchange properties and a bare Au **electrode**. An explanation of this effect is presented. An **electrochem.** quartz crystal microbalance (EQCM) with 10-MHz AT-cut piezoelectrodes was used in this study. The use of the EQCM technique allowed for simultaneous monitoring of the current-voltage and resonance frequency vs. potential or time characteristics. By controlling the frequency readings, the thickness of the electropolymd. polypyrrole film substrate and also the amt. of the electrodeposited Ni was exactly monitored. The nucleation d. was detd. from SEM expts. and was correlated with the current-time and frequency-time transients. The effect of potential, type of anions and different additives on the nucleation and growth of Ni was also investigated.

L11 ANSWER 134 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 122:18754 CA

TI Synthesis, characterization and response to hydrogen of **polyaniline-Pd composite** thin films

AU Li, Hong-Shi; Josowicz, M.; Engelhard, M.; Baer, D. R.; Janata, J.

CS Pacific Northwest Laboratory, Molecular Science Research Center, Richland, WA, 99352, USA

SO Proceedings - Electrochemical Society (1994), 94-14 (MICROSTRUCTURES AND

MICROFABRICATED SYSTEMS), 123-31

AB It has been previously reported that thin polyaniline (PANi) film can serve as a matrix for incorporation of metal clusters. In the current study, various prepn. routes for the synthesis of the **composite PANi-Pd** films were developed. They can be classified as 1- or 2-step processes. In the 1-step process, the electrolyte solns. contain both aniline monomer and Pd²⁺ ions and the composite material is obtained during the polymn. of polyaniline film. In the 2-step process, the working electrode is 1st coated with conducting polyaniline film and then used for the insertion of Pd. **Electrochem.** tests and XPS were employed to characterize the H adsorption, absorption and desorption properties of the **PANi-Pd composite** films and the binding energy state of the Pd clusters in the composite material. By using these techniques, the differences among the synthesized materials were clearly identified.

L11 ANSWER 141 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 121:256975 CA

TI **Polypyrrole composites** containing **platinum** or **carbon black**: from synthesis to novel applications

AU Rajeshwar, K.; Wei, C.; Wampler, W.; Bose, C. S. C.; Basak, S.; German, S.; Evans, D.; Krishna, V.

CS Dep. Chem. Biochem., Univ. Texas, Arlington, TX, 76019-0065, USA

SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1994), 35(1), 234-5

L11 ANSWER 146 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 121:135220 CA

TI Anodic codeposition of polypyrrole and finely dispersed copper-phthalocyanine: intrinsic **redox** behavior of the blends

AU Dahlhaus, M.; Beck, F.

CS Fachgebiet Elektrochemie, Universitaet Duisburg, Duisburg, D-47057, Germany

SO Zeitschrift fuer Physikalische Chemie (Muenchen, Germany) (1994), 185(1), 103-117

AB Anodic codeposition of polypyrrole (I) and finely dispersed copper phthalocyanine (II) leads to novel I/II-composites with a filler concn. up to 8 wt.% under std. conditions. Intrinsic **redox** behavior of this material is based on both components. The polypyrrole matrix exhibits an enhanced **redox** capacity and a lowered peak sepn. in the voltammograms, due to an appreciably higher porosity. The II filler shows roughly the same **redox** peaks as for vacuum deposited films. They are superimposed to the I curve. No photoelectrochem. response of the II could be detected. The reasons for this are discussed.

L11 ANSWER 162 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 120:193484 CA

TI Electrocomposites of polypyrrole and carbon black

AU Wampler, Wesley A.; Wei, Chang; Rajeshwar, Krishnan

CS Fort Worth Res. Cent., Sid Richardson Carbon Co., Fort Worth, TX, 76106, USA

SO Journal of the Electrochemical Society (1994), 141(2), L13-L15

AB Aq. dispersions of **carbon black** were used to electrosynthesize **polypyrrole-carbon black composites**, with a **carbon black**-content range of 10-80 wt. percent. These electrocomposites showed enhanced charge storage capacity (relative to pure polypyrrole) and, more importantly, retained good elec. cond. even at potentials wherein the polymer was in the reduced (insulating) state.

L11 ANSWER 166 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 120:107814 CA

TI Kinetic studies in the electroinitiated polymerization of N-vinylcarbazole and related conducting polymer composites

AU Elibol, H.; Hacıoglu, B.; Akbulut, U.; Toppare, L.

CS Dep. Chem., Middle East Tech. Univ., Ankara, Turk.

SO Journal of Macromolecular Science, Pure and Applied Chemistry (1994), A31(5), 593-611

AB Electrochem. polymn. of N-vinylcarbazole (I) on Pt **electrodes** was studied. Effects of concn., **electrode** area, polymn. potential, and solvent on the polymn. rate were discussed. Insulating and conducting polymers of I can be simultaneously prepd. depending on the electrolysis conditions. The insulating I homopolymer cannot only be converted into a conducting one but can also be blended with other conducting polymers such as polythiophene and polypyrrole. Sol. insulating polymers of I were characterized by FTIR, NMR, and DSC studies. Conducting polymers were characterized by FTIR and 4-probe **cond.** measurements.

L11 ANSWER 178 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 119:261597 CA

TI Conducting **polymers** of **aniline**. II. A **composite** as a gas **sensor**

AU Dogan, S.; Akbulut, U.; Yalcin, T.; Suzer, S.; Toppare, L.

CS Department of Chemistry, Middle East Technical University, Ankara, 06531, Turk.

SO Synthetic Metals (1993), 60(1), 27-30

AB The gas sensing ability of electrochem. prepd. pure polyaniline and polyaniline-poly(bisphenol-A carbonate) films is investigated. The responses of the composite films to several vapors are more well defined and reproducible compared to the pure conducting polymer. The changes in resistance as detd. via the two-probe technique are well defined down to a level of 0.025% vol./vol. ammonia. The possible reason for such a difference is discussed. The structure of the composite is examd. through pyrolysis FT-IR studies.

L11 ANSWER 187 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 119:181963 CA

TI Synthesis and properties of microheterolayers of conducting polymers

AU Shimidzu, T.; Iyoda, T.; Toyoda, H.; Fujitsuka, M.; Nakahara, R.

CS Grad. Sch. Eng., Kyoto Univ., Kyoto, Japan

SO Synthetic Metals (1993), 55(2-3), 1335-42

AB A novel potential programmed electropolymn. method which enables fabrication of any microscopic depth structures in conducting polymer ultrathin films, such as heterolayers and sloped layers, has been developed. The depth profiles of the heterolayers such as thickness and polymer compn.

are controlled by applied **electrode** potential, and a nanometer-order layered structure has been easily synthesized. The aim of the present study is to manipulate elec., optical, and the other various properties specific to the depth structure by changing structural parameters such as polymer compn. or doping level of the layers, finally to realize an org. superlattice. This paper deals with the prepn. of any microscopic depth structures of conducting polymers such as type I and type II heterostructures Esaki et al proposed as superlattice, by the present potential programmed electropolymn. method, and the structure-specific properties., including a quantum-size effect.

L11 ANSWER 208 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 118:39833 CA

TI New chemical one-step process for preparing fine metallic **particles** embedded in a polymer matrix

AU Deschamps, Annie; Lagier, Jean Pierre; Fievet, Fernand; Aeiych, Salah; Lacaze, Pierre Camille

CS Lab. Chim. Mater. Div. Catal., Univ. Paris 7, Paris, 75251, Fr.

SO Journal of Materials Chemistry (1992), 2(11), 1213-14

AB Co, Cu, or Ni **particles** (in the micrometric range) embedded in polyaniline were obtained by polymn. of aniline in presence of CuO, Co(OH)₂, or Ni(OH)₂. Elec. conducting or insulating materials were obtained from compacted powders depending on the metal:polymer ratio.

L11 ANSWER 211 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 117:182461 CA

TI Sensing properties of **polypyrrole**-polytetrafluoroethylene **composite** thin films from granular **metal**-polymer precursors

AU Bruschi, P.; Cacialli, F.; Nannini, A.

CS Sc. Super. Stud., Univ. Perfezionamento S. Anna, Pisa, I-56127, Italy

SO Sensors and Actuators, A: Physical (1992), A32(1-3), 313-17

AB A new class of **sensor**-oriented composite conducting thin films was grown utilizing an original method. The technique is based on the chem. polymn. of pyrrole (PY) vapors onto an oxidizing salt pattern obtained via chlorination of a cosputtered granular metal thin film. The time stability of the samples realized with this technol. approach and their response to exposure to different atmospheres were studied; the behavior of the material subjected to mech. strain was also investigated.

▣L11 ANSWER 212 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 117:152336 CA

TI Conducting polymer **composites**. **Polypyrrole-metal** oxide latexes

AU Partch, R. E.; Gangolli, S. G.; Owen, D.; Ljungqvist, C.; Matijevic, E.

CS Cent. Adv. Mater. Process., Clarkson Univ., Potsdam, NY, 13699, USA

SO ACS Symposium Series (1992), 492(Polym. Latexes), 368-86

▣L11 ANSWER 229 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 116:200221 CA

TI **Electrodes** for gas **sensors** using **electrode** reaction

IN Sakaguchi, Masakazu; Kawashima, Yoshinori

PA Toyo Ink Mfg. Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.
PI JP 04002958 A2 19920107 JP 1990-103657 19900419
PRAI JP 1990-103657 19900419

L11 ANSWER 232 OF 452 CA COPYRIGHT 2005 ACS on STN
AN 116:84839 CA
TI Electrical behavior of **poly(p-phenylene sulfide)** conducting **composites**
AU D'Ilario, L.; Martinelli, A.
CS Chem. Dep., Univ. "La Sapienza", Rome, 00185, Italy
SO Journal of Materials Science Letters (1991), 10(24), 1465-7
AB The **resistivity** of poly(p-phenylene sulfide) (I) filled with Fe, graphite, or acetylene carbon black was presented as a function of the vol. fraction of filler. The effective medium approxn. theory and the gel theory proposed by Flory were used to fit the exptl. data. The 2 theories gave crit. thresholds quite different from the exptl. ones. The active contribution of I matrix to the elec. charge transport must be excluded.

L11 ANSWER 241 OF 452 CA COPYRIGHT 2005 ACS on STN
AN 115:232913 CA
TI Synthesis, properties, and applications of **polypyrrole** and its **composites**
AU Omastova, Maria
CS Ustav Polym., SAV, Bratislava, 842 36, Czech.
SO Chemicke Listy (1991), 85(8), 794-816
LA Slovak
AB A review with 113 refs. on the electrosynthesis and chem. synthesis of polypyrrole (I), its doping, structure, cond., electrochem. and mech. properties, degrdn. and stability, prepn. of I composites, and application of I in cells, catalysts, and **sensors**.

L11 ANSWER 248 OF 452 CA COPYRIGHT 2005 ACS on STN
AN 115:124471 CA
TI Conducting polymer blend thin films from granular metal-polymer composites
AU Nannini, A.; Cacialli, F.; Bruschi, P.
CS Sci. Super. Studi Univ. Perfezionamento S. Anna, Pisa, 56127, Italy
SO Journal of Molecular Electronics (1991), 7(1), 21-7
AB A method of growing a class of thin films of composite conducting materials is described. A technol. approach which allows the deposition of a fluorinated polymer-polypyrrole alloy on a solid substrate is outlined. This procedure employs a cosputtered granular metal in which the metal grains are chlorinated to produce an oxidizing agent capable of promoting pyrrole polymn. Morphol., optical and elec. characterization of the material are reported. The low-temp. behavior of the resistance was investigated. The polymer **blend** seems to be less disordered than **polypyrrole** thin films grown on an oxidizing salt pattern from the vapor phase.

L11 ANSWER 252 OF 452 CA COPYRIGHT 2005 ACS on STN
AN 115:73513 CA
TI Electrically conducting **fibers** made from rigid rod polymers

AU Romanko, W. R.; McHatton, P. A.; Marcy, H. O.; Kannewurf, C. R.; Marks, T. J.; Carr, S. H.

CS Mater. Res. Cent., Northwestern Univ., Evanston, IL, 60208, USA

SO Synthetic Metals (1991), 41(3), 947-50

AB Elec. cond. and morphol. of poly(**p-phenylene terephthalamide**) **fibers** or **poly(p-phenylenbenzobisthiazole) fibers composites** with **nickel** phthalocyanine are examd.

L11 ANSWER 254 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 115:59385 CA

TI **Conductive polymer composites** and copolymers of **pyrrole** and N-vinylcarbazole

AU Geissler, Uwe; Hallensleben, Manfred L.; Toppare, Levent

CS Inst. Macromol. Chem., Univ. Hannover, Hannover, D-3000, Germany

SO Synthetic Metals (1991), 40(2), 239-46

AB The synthesis of composites and copolymers of pyrrole and N-vinylcarbazole is described. Both insulating and conducting polymers of N-vinylcarbazole are utilized in the electroinitiated polymn. of pyrrole. The influence of coating either of the conducting polymers prior to the other on the percolating threshold is discussed. The initial presence of both monomers in the reaction medium leads to a copolymer, whereas consecutive **electrode** coatings from the monomer soln. yield inhomogeneous composites together with grafts. Characterization are carried out via FT-IR, DSC, TGA and SEM analyses.

●L11 ANSWER 255 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 115:9410 CA

TI The 100-Å-order depth profile control of **polypyrrole-poly(3-methylthiophene) composite** thin film by potential-programmed electropolymerization

AU Iyoda, Tomokazu; Toyoda, Hideo; Fujitsuka, Mamoru; Nakahara, Reiko; Tsuchiya, Hajime; Honda, Kenichi; Shimidzu, Takeo

CS Grad. Sch. Eng., Kyoto Univ., Kyoto, 606, Japan

SO Journal of Physical Chemistry (1991), 95(13), 5215-20

AB Alternate layered and graded structures with 100 Å-order resoln. are obsd. in pyrrole-3-methylthiophene copolymer composite thin films prepd. by potential-programmed electropolymn. of the monomer mixt. A polymn. mechanism was discussed. The compositional depth profiles of the resulting **films** were **analyzed** by TEM and electron-probe microanal.

●L11 ANSWER 278 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 113:116496 CA

TI Electrically **conductive** polythioarylenes containing rubbers and carbon
IN Dziurla, Hans Juergen; Reinking, Klaus; Wehnert, Wolfgang; Tresper, Erhard

PA Bayer A.-G., Germany

SO Ger. Offen., 3 pp.

PI DE 3828696

A1 19900301

DE 1988-3828696

19880824

US 4985175

A

19910115

US 1989-393217

19890814

PRAI DE 1988-3828696

A

19880824

AB Compns. with very low elec. resistance contain polythioarylenes 20-82,

rubbers 5-60, graphite 4-60, and **conductive** carbon black 4-60%. A **mixt.** of **polythiophenylene** 64.0, acrylic rubber (Paraloid KM 330) 16.0, **graphite** 5.0, **conductive** carbon 10.0, and mica 5.0% had surface **resistivity** $92\ \Omega$ and bulk **resistivity** $37\ \Omega\text{-cm}$; vs. 49.0 and 2.1, resp., without the rubber; and 65 and 3.7, resp., without the polythiophenylene.

L11 ANSWER 283 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 113:48467 CA

TI **Redox** behavior of polypyrrole films containing naphthoquinone and benzoquinone groups

AU Grimshaw, James; Perara, Sarath D.

CS Dep. Chem., Queen's Univ., Belfast, BT9 5AG, UK

SO Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1990), 281(1-2), 125-32

AB The synthesis and electropolymer. of 2-[2-(1-pyrrolyl)ethylamino]-3-chloronaphthoquinone (PNQ) and 2,5-bis[2-(1-pyrrolyl)ethylamino]-2,6-dichlorobenzoquinone (PBQ) are described. **Electrochem.** behavior of poly(PNQ) and poly(PBQ) films on Pt electrodes was investigated in acetonitrile media. A stable composite film was obtained by the oxidn. of PNQ on a polypyrrole coated Pt electrode.

L11 ANSWER 307 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 111:104407 CA

TI Organic/inorganic **electrodes** (ORINELs) with continuous phase components

AU Aurian-Blajeni, B.; Holleck, S. C.; Jackman, B. H.

CS EIC Lab., Inc., Norwood, MA, 02062, USA

SO Journal of Applied Electrochemistry (1989), 19(3), 331-5

AB A new class of composite materials for **electrodes** is introduced; their characteristic feature is the unity of the components. **Composites** comprising hydrated iridium oxide and **polyaniline** are characterized by **impedance** spectroscopy and current pulse expts.

L11 ANSWER 313 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 111:68761 CA

TI Microstructure and charge transport in hybrid metallophthalocyanine/rigid rod polymer **fibers**

AU Redman, J. M. C.; Giesler, J. M.; Romanko, W. R.; Carr, S. H.; Depra, P. A.; Marks, T. J.; Marcy, H. O.; Kannewurf, C. R.

CS Dep. Mater. Sci. Eng., Northwestern Univ., Evanston, IL, 60208, USA

SO Synthetic Metals (1989), Volume Date 1988, 29(2-3), F25-F30

AB Strong, environmentally stable, elec. **conductive fibers** can be fabricated from solns. of Ni phthalocyanine (Ni(Pc)) and the ultrahigh modulus polymers poly(p-phenyleneterephthalamide) (PPTA, Kevlar) or poly(p-phenylenebenzobisthiazole) (PBT) by dry-jet, wet-spinning techniques, followed by chem. or **electrochem.** doping. The **fiber** mech. strengths at a particular compn. is a simple linear function of the Ni(Pc)I vol. fraction ϕ : $s \approx s_p(1 - \phi)$, where s_p is the strength of a pure PPTA or PBT **fiber**. The elec. **cond.** σ for $\phi > 0.17$ obeys the empirical relationship: $\ln(\sigma) = \phi \ln(\sigma_c) + (1 - \phi) \ln(\sigma_p)$, where σ_c represents the **cond.** of polycryst. Ni(Pc)I and σ_p denotes the **cond.** of pure

PPTA or PBT. The temp. dependence of σ is thermally activated and can be fit to a fluctuation-induced carrier tunneling model. In contrast, the thermoelec. power S of the **fibers** is p-type and metal-like ($S \sim T$), strongly resembling that of Ni(Pc)I single crystals. X-ray diffraction shows microstructural evidence for phase sepn. and the presence of a fine (domain size <50 nm) Ni(Pc)I dispersion embedded in the PPTA or PBT matrix.

L11 ANSWER 334 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 110:15010 CA

TI Preparation and **electroactivity** of poly(thiophene) electrodes modified by electrodeposition of palladium **particles**

AU Yassar, A.; Roncali, J.; Garnier, F.

CS Lab. Mater. Mol., CNRS, Thiais, 94320, Fr.

SO Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1988), 255(1-2), 53-69

AB Poly(3-methyl-thiophene) (PMeT) electrodes modified by electrodeposition of Pd **particles** were prepd. The effects of the various electrodeposition parameters, e.g. the charge passed and the applied elec. conditions, on the size and spatial distribution of the Pd **particles** in the PMeT matrix were analyzed by using SEM and TEM microscopy, EDX and x-ray diffraction. The **electroactivity** of these modified electrodes was investigated in the case of O redn. in an aq. medium by using cyclic and rotating disk voltammetry. The electrocatalytic properties of these modified electrodes are governed by the electrodeposition parameters controlling their compn. and structure.

▣L11 ANSWER 342 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 109:171544 CA

TI Electrically **conductive** composite manufacture

IN Tamura, Shohei; Sasaki, Sadamitsu; Abe, Masao; Ichinose, Takashi

PA Nitto Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

PI JP 63120733

A2

19880525

JP 1986-266284

19861108

PRAI JP 1986-266284

19861108

▣L11 ANSWER 354 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 108:187479 CA

TI Manufacture of highly electrically **conductive** polymer compositions

IN Ikezaki, Takashi; Kira, Masaaki; Yamamoto, Satoshi; Murakoshi, Yoshihiko

PA Showa Denko K. K., Japan; Hitachi, Ltd.

SO Jpn. Kokai Tokkyo Koho, 4

PI JP 62257968

A2

19871110

JP 1986-100854

19860502

PRAI JP 1986-100854

19860502

▣L11 ANSWER 375 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 107:78760 CA

TI Plastics with electric **conductivity**

AU Banhegyi, Gyorgy

CS Hung.

SO Termeszeti Vilaga (1987), 118(4), 168-71

LA Hungarian

L11 ANSWER 383 OF 452 CA COPYRIGHT 2005 ACS on STN

AN 106:139561 CA

TI Reactive gas **sensor**

IN Nichols, Leo F.

PA Enron Corp., USA

SO U.S., 3 pp.

PI US 4638286 A 19870120 US 1985-716183 19850326

PRAI US 1985-716183 19850326

AB Title article comprises an inner layer of elec. conductive polymer, an intermediate plastic gas barrier, and an outer plastic moisture barrier and a means for measuring the resistance of the elec. conductive layer. The elec. conductive polymer is selected from poly(acetylene), polythiophenylene, polyoxyphenylene, and polyphenylene. The gas barrier is selected from ethylene-vinyl alc. copolymer, poly(vinylidene chloride), poly(ethylene terephthalate), poly(formaldehyde), and poly(vinyl fluoride). The moisture barrier is selected from low-d. polyethylene, polypropylene, and PTFE.

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